

UNITED STATES  
DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION

DISTRICT 7

ACCIDENT INVESTIGATION REPORT  
(UNDERGROUND COAL MINE)  
NON-FATAL COAL OUTBURST ACCIDENT  
NO. 37 MINE (I.D. NO. 15-04670)  
ARCH OF KENTUCKY, INCORPORATED  
CUMBERLAND, HARLAN COUNTY, KENTUCKY

MAY 8, 1989

BY

JAMES W. POYNTER  
COAL MINE SAFETY AND HEALTH INSPECTOR

ORIGINATING OFFICE - MINE SAFETY AND HEALTH ADMINISTRATION  
HC 66, BOX 1762, BARBOURVILLE, KENTUCKY 40906  
JOSEPH J. GARCIA, DISTRICT MANAGER

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### GENERAL INFORMATION

The No. 37 Mine of Arch of Kentucky, Incorporated is located one mile south of U.S. 119 on Cloverlick Road, Cumberland, Harlan County, Kentucky. The mine began operation on or about October 1, 1980. The mine produces coal with four shifts per day, five days per week, with two-hundred-thirty-five underground employees and forty-seven surface employees.

The mine is a multi-unit mine with two advancing units and one longwall unit, in production at this time. The advancing units utilize three to five entry systems with Joy 12CM Continuous Miners, Joy 10SC shuttle cars, Fletcher or Galis roof bolters and S&S scoops. The longwall unit utilizes a Mitsui Trojan 700 shearer, one-hundred-four Westfalia shields, and a Halbach-Braun stage-loader automatic face conveyor system across a five-hundred foot working face. All units utilize belt conveyor coal haulage. Track haulage is used for mantrip and supply via battery and/or trolley or diesel-powered vehicles. The mine has a daily production of ten-thousand tons.

Principal Mine Officials are:

Tom J. Sawarynski  
Danny Stickel  
Kenneth R. McCoy

President  
Superintendent No. 37 Mine  
Manager Safety & Employee  
Development

The Roof Control Plan, approved June 20, 1988, provides for overhead support in all roof spans. The minimum entry width is twenty feet, developed with a minimum distance of sixty feet between the centers of entries, crosscuts and rooms. Rods, fully grouted with polyester resin are used on advancing sections. The minimum length of rods is thirty-six inches with installation on forty-eight inch centers. Tensioned rebar combination bolts, with twenty-four inches minimum grouting, are also approved for use. Tensioned rebar bolts have a minimum length of forty-eight inches, installed on forty-eight inch centers. The retreating longwall section provides for full overhead support utilizing four-leg hydraulically powered "shields" with one-hundred-fifty-four tons yield capacity per leg. Shields are equipped with extensible plates for skin-to-skin protection on the roof beam and caving shield and forepole extension to provide immediate support behind the shearer.

A supplement to the Roof Control Plan was approved to require modification of operating procedures in potential bump areas. This plan requires minimizing the distance the headgate is in front of the tailgate; closely monitoring the gob overhanging to



evaluate potential burst/bump conditions; monitor face rate advance; limit the number of people at the shearer in potential bump areas; operators and propmen will be required to operate the machine remotely from No. 85 shield to No. 104 shield; and No. 85 through No. 104 shields will be advanced as soon as the full face web is cut.

Studies are being conducted by the USBM to assist in developing a comprehensive coal and rock burst plan.

The last regular Health and Safety Inspection was completed March 31, 1989.

#### DESCRIPTION OF ACCIDENT

Monday, May 8, 1989 at 1:00 a.m., the 004 section crew of nine persons entered the mine by diesel mantrip and traveled to the working section. The section crew met at the dinner-hole and a safety meeting was held by Ralph Price, Section Foreman. The work assignments were given by Price and the crew proceeded to the face. The shearer was located at the No. 50 shield, headed toward the headgate. The shearer was taken back across the face, to the tailgate, to straighten the pan. Coal production began at approximately 2:00 a.m., due to a delay in starting the main conveyor belts.

Ronnie Dudash and Johnny Thompson (injured), Tailgate and Headgate-side Shearer Operators, respectively, were making the cut-out at the tailgate of the third pass when the outburst occurred. Dudash was advancing the shearer, by radio remote, at the No. 99 shield. Thompson was located in the walkway of the No. 91 shield. Robert Knoll, Propman, was positioning the pan at the No. 79 shield. Dudash was knocked backward over the shield's controls, he began searching for Thompson but was unable to find him. Dudash called to Knoll, who was proceeding toward the shearer, to contact Price on the mine telephone. Knoll informed Price of the outburst and proceeded to the shield where Dudash was removing the loose coal from around Thompson. Thompson had been pushed back between the Nos. 90 and 91 shields and partially covered from the chest down by loose coal. Shortly thereafter, the remaining crew; foreman; and propmen arrived and assisted Dudash and Knoll in removing the loose coal.

Knoll questioned Thompson about his injuries and cleaned the coal dust from his face and mouth. Thompson, complaining of pain in his right side, was placed on a stretcher and carried to the diesel-powered mantrip and transported to the surface. Thompson was transferred to the company ambulance and transported to the Harlan Appalachian Regional Hospital, Harlan, Kentucky. He was later transported by helicopter to the Holsten Valley Community Hospital, Kingsport, Tennessee, for further treatment.

### PHYSICAL FACTORS INVOLVED

The investigation revealed the following factors relevant to the occurrence of the accident:

1. The mine is located in the Harlan coal-seam, one-half mile south of Cumberland, Harlan County, Kentucky. The immediate roof, throughout the mine, normally consists of ten feet, or more, siltstone and the main roof consists of ten feet, or more, sandstone. Coal is extracted from the longwall face by a Mitsui Trojan 700 ripper-type shearer. The roof, across the longwall face, is supported by Westfalia four-leg shields with one-hundred-fifty-four tons per leg yield capacity. Mined coal is transported across the five-hundred foot face by a Halbach-Braun (H & B) conveyor pan-line.
2. The headgate and tailgate entries, for the affected panel, were developed as three-entry systems on one-hundred-twenty feet centers between crosscuts, eighty-five feet centers between Nos. 1 and 2 entries, and one-hundred-thirty-five feet centers between Nos. 2 and 3 entries.
3. The longwall panel (total length approximately seven-thousand-five-hundred feet) had been mined approximately one-thousand-five-hundred feet to where mining ceased due to a sandstone roll at the No. 49 crosscut. The unit was moved to the No. 42 crosscut, a distance of approximately eight-hundred-forty feet.
4. The longwall unit had advanced approximately two-thousand-four-hundred feet from the No. 42 crosscut to where an outburst occurred at crosscut No. 22 on April 12, 1989.
5. The longwall panel has advanced approximately six-hundred feet from that point to where this outburst occurred.
6. The total amount of overburden, at the scene of the accident, was approximately one-thousand-two-hundred-fifty feet.
7. Mining was completed in November, 1988, in the adjacent area (tailgate side) between the Nos. R-16 and R-22 entries.



8. An area of soft, broken floor was observed from the No. 73 shield to the No. 79 shield, a distance of twenty-five feet.
9. Evidence of excessive loading was observed in the No. 2 entry of the R-16 (tailgate) entries, approximately one-hundred-seventy feet outby the longwall face. The coal pillars were crushed out and the mine floor had heaved.
10. Evidence of lateral shift caused by roof pressure was observed in the No. 1 entry of the R-16 (tailgate) entries, in an area beginning approximately one-hundred-twenty feet outby the longwall face. Of the two rows of four-feet-square cribs installed, on twelve feet centers maximum, in the entry, the row opposite of the longwall panel, exhibited a sixteen-inch lateral shift (eight degrees from vertical). The adjacent row remained in a vertical position.
11. The immediate roof, laminated shale and sandstone, had caved to a height of approximately fourteen feet on the headgate end of the longwall gob area and approximately twelve feet on the tailgate end. The main (sandstone) roof, was observed above the fallen material at both locations.
12. Approximately one-hundred tons of material was broken or expelled from the coal face, affecting an area approximately fifty-five feet in length, nine feet in height, and five feet (average) in depth.
13. The force of the outburst elevated the face side of the shearer machine, ten inches higher than the shield side. Loose coal was expelled from the face area and was up to thirty-six inches deep along the walkway in the shields beginning at the No. 88 shield and extending to the No. 93 shield, a distance of approximately forty feet.
14. The most severely affected area of the coal face was in the vicinity of the headgate-end ripper-drum. This area was approximately fifty-eight feet from the No. 1 tailgate entry and extended for approximately twelve feet beyond the drum.
15. The headgate and tailgate-side shearer operators, were positioned at the Nos. 91 and 92 shields, respectively.
16. On April 12, 1989 a coal outburst occurred on the longwall face. This occurred approximately 600' inby the location of this occurrence.

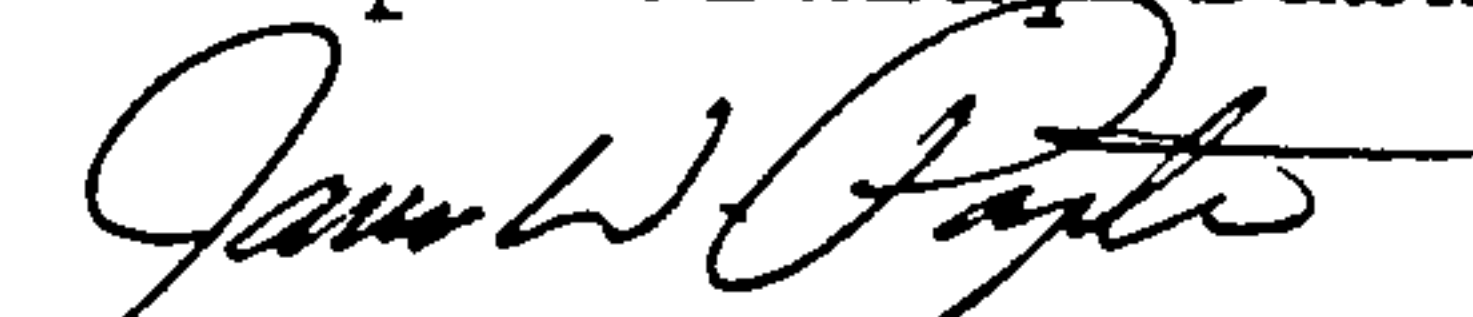
### CONCLUSION

It was the consensus of the investigating committees that the accident occurred because significant caving had not occurred inby the longwall unit to relieve the pressure across the working face. The pressure was created by massive consolidated sandstone roof across this area of the R-9, R-16 and R-22 entries and the failure of the abutment pillars from excessive loading.

### VIOLATIONS

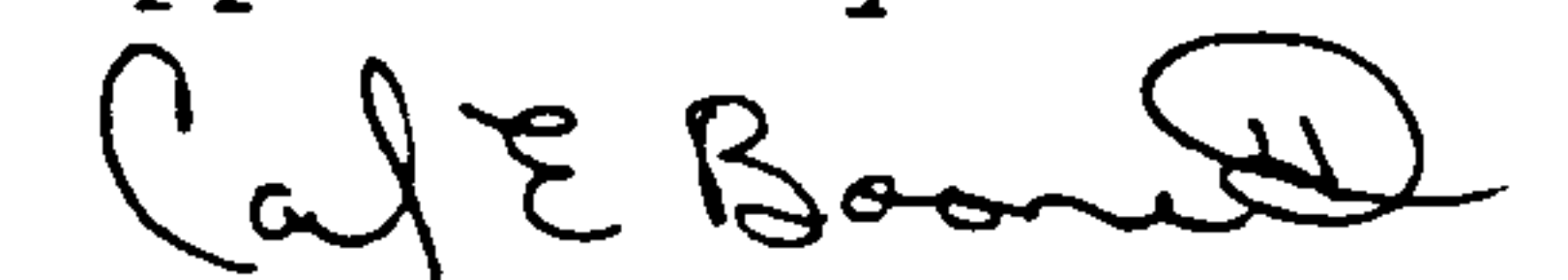
- I. A 103-K Order, No. 3172273, was issued May 8, 1989, for the purpose of investigation into the injury related accident.
- II. A 107-A Imminent Danger Order, No. 3174493, was issued May 8, 1989, to prevent persons from producing coal in the affected area until a plan for controlling the outbursts of coal is approved by the District Manager.
- III. A 104-A Citation, No. 3174494, was issued, as the operator failed to comply with the approved roof control plan because the headgate-side shearer operator was positioned between the Nos. 85 and 104 shields, while the shearer was in operation, a violation of 75.220, 30 CFR.
- IV. A 104-A Citation, No. 3174495, was issued, as the operator failed to comply with the approved roof plan because the tailgate-side shearer operator was positioned between the Nos. 85 and 104 shields, while the shearer was in operation, a violation of 75.220, 30 CFR.

Respectfully submitted,

  
James W. Poynter

Coal Mine Safety & Health Inspector

Approved by:

  
Carl E. Boone, II  
Subdistrict Manager

and

Joseph J. Garcia  
District Manager



## APPENDIX

List of persons furnishing information and/or present during the investigation:

### Arch of Kentucky, Incorporated

Danny Stickel	Mine Manager
Kenneth R. McCoy	Manager-Employee & Safety Development
Ralph Price	Foreman
Ronnie Dudash	Shearer Operator
D.R. Knoll	Propman

### United Mine Workers of America

Kenny Johnson	President, Local 7425
Robert Clay	Chairman, Health & Safety Committee
George Massey	Safety Committeeman

### Kentucky Department of Mines and Minerals

Dewey Middleton	District Supervisor
David Disney	Inspector
Ronnie Hampton	Mine Safety Analyst

### Mine Safety and Health Administration

Robert Blanton	Roof Control & Ventilation Specialist
Kenneth Fee	Coal Mine Safety & Health Inspector Supervisor
John G. Gluck	Education & Training Specialist
James Poynter	Coal Mine Safety & Health Inspector

## Preliminary Report of Accident

U.S. Department of Labor  
Mine Safety and Health Administration

This Form is Affected by the Privacy Act of 1974.

1. Accident Type Nonfatal Injury Accident		2. Accident Classification Fall of Face, Rib, Side or Highwall		3. Fatal Case Number	
4. District 7		5. Subdistrict Barbourville		6. Field Office Harlan	
7. Name of Person Preparing Report James Poynter		8. MSHA Person Notified Jimmie Tankersley		Date 05-08-89	Time 5:45 am
9. Notifying Mine Person J. R. Estep		10. Telephone Number 606-589-2986			
11. Mining Company Name Arch of Kentucky, Inc.		a. Company/Contractor Name N/A		b. Parent Company Arch Minerals Corporation	
12. Mine Name No. 37		a. Union <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		13. ID Number 15-04670	14. Primary Mineral Mined Coal
15. Number of Employees: a. Total 282		b. Underground 235		c. Open Pit or Quarry 0	d. Mill/Prep Plant 0
16. Number of Persons in Mine at Time of Accident 45		e. Other 0			
17. Mine Location: a. City Cumberland		b. County Harlan		c. State Kentucky	
18. Date of Accident (month, day & year) 05-08-89		19. Time of Accident (Indicate a.m./p.m.) 4:15 am		20. Date/Time of Death (month, day & year) N/A	
21. Mark code which best describes where accident occurred. <input checked="" type="checkbox"/> 01 - Underground <input type="checkbox"/> 02 - Surface at Underground <input type="checkbox"/> 03 - Open Pit Mine <input type="checkbox"/> 06 - Dredge Mining <input type="checkbox"/> 07 - Advance Mining <input type="checkbox"/> 08 - Retreat Mining <input type="checkbox"/> 30 - Mill/Prep Plant <input type="checkbox"/> 99 - Office Facility <input type="checkbox"/> Other (specify)					22. Mining Height 108-inches
23. Number of Nonfatal Injuries 01		24. Number of Fatal Injuries or Illnesses (complete additional sheets for multiple fatalities) N/A		a. Name	
b. Age		c. SSN (last 4 digits)		d. Regular Job Title	
25. Mining Experience: a. Total		b. With Company		c. At Mine	
26. Autopsy <input type="checkbox"/> Yes <input type="checkbox"/> No		d. On Job			

27. Description of accident, include equipment involved, exact location in mine of fatality, and status of rescue and recovery operations, if appropriate. (continue on reverse if more space needed)

At 4:15 am, May 8, 1989, along the longwall face, beginning at the No. 80 shield and extending to the No. 99 shield, an outburst of coal occurred, resulting in injuries to one (1) person and damaging the longwall shearer machine.

Exact location in the mine was on the 004-0 m.m.u. (longwall section), located in the longwall panel between the R-9 and R-16 entries. The longwall face is approximately 500-feet long. The distance from the portal to the longwall section is approximately 24,900-feet.

(continued on reverse ☐)

28. Equipment Manufacturer Mitsui		29. Model Trojan 700	
30. Initial Report <input checked="" type="checkbox"/>	31. Signature <i>James Poynter</i>	Title Coal Mine Inspector	Date 05-10-89
a. Amended Report <input type="checkbox"/>			
32. Reason for Amendment:			

## Data Sheet

U.S. Department of Labor  
Mine Safety and Health Administration

## Section A—Victim Data

1. Name	2. Sex	3. Social Security Number
Johnny Thompson	<input checked="" type="checkbox"/> Male <input type="checkbox"/> Female	403-74-1071
4. Age	5. Job Classification	
37	Shearer Operator	
6. Experience at this Classification	7. Total Mining Experience	
7 years 3 months	11 years, 11 months	
8. What activity was being performed at time of accident?	9. Victim's Experience at this Activity	10. Was victim trained in this task?
Shearer Operator	7 years, 3 months	Yes

## Section B—Victim Data for Health and Safety Courses/Training Received (related to accident)

	Date Received
11. Annual Refresher Training (Underground)	October 17, 1988
12.	
13.	
14.	

## Section C—Supervisor Data (supervisor of victim)

15. Name	16. Certified
Ralph Price	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
17. Experience as Supervisor	18. Total Mining Experience
5 years	15 years, 7 months

## Section D—Supervisor Data for Health and Safety Courses/Training Received (related to accident)

	Date Received
19. Annual Refresher Training (Underground)	September 26, 1988
20. Electrical Refresher Training	October 22, 1988
21.	
22.	

23. When was the supervisor last present at accident scene prior to the accident?

3:55 a.m.

24. What did he do when he was there?

Observe cutting cycle of shearer

25. When was he last in contact with the victim?

3:55 a.m.

26. Did he issue instructions relative to the accident?

No

27. Was he aware of or did he express an awareness of any unsafe practice or condition?

No



## Abstract of Investigation

U.S. Department of Labor  
Mine Safety and Health Administration

Authority—This report is based on an investigation made pursuant to the Federal Mine Safety and Health Act of 1977, Public Law 91-173, as amended by Public Law 95-164.

## Section A—Identification Data

1. Title of investigation:	2. Date MSHA investigation started:
Non-Fatal Coal Outburst Accident	5-8-89
3. Report release date:	4. Mine:
	No. 37
5. Mine ID number:	6. Company:
15-04670	Arch of Kentucky, Inc.
7. Town, County, State:	8. Author(s):
Cumberland, Harlan County, Kentucky	James Poynter, John Gluck

## Section B—Mine Information

9. Daily production:	10. Surface employment:
10,000	47
11. Underground employment:	12. Name of coalbed:
235	Harlan
13. Thickness of coalbed:	
84 inches	

## Section C—Last Quarter Injury Frequency Rate (HSAC) for:

14. Industry:	15. This operation:
Total Degree 2-5: 12.78	6.98
16. Training program approved:	17. Mine Profile Rating:
05-17-88	N/A

## Section D—Originating Office

18. Mine Safety and Health Administration Coal Mine Health and Safety District No. : 7	Address: HC 66, Box 1762, Barbourville, Kentucky 40906
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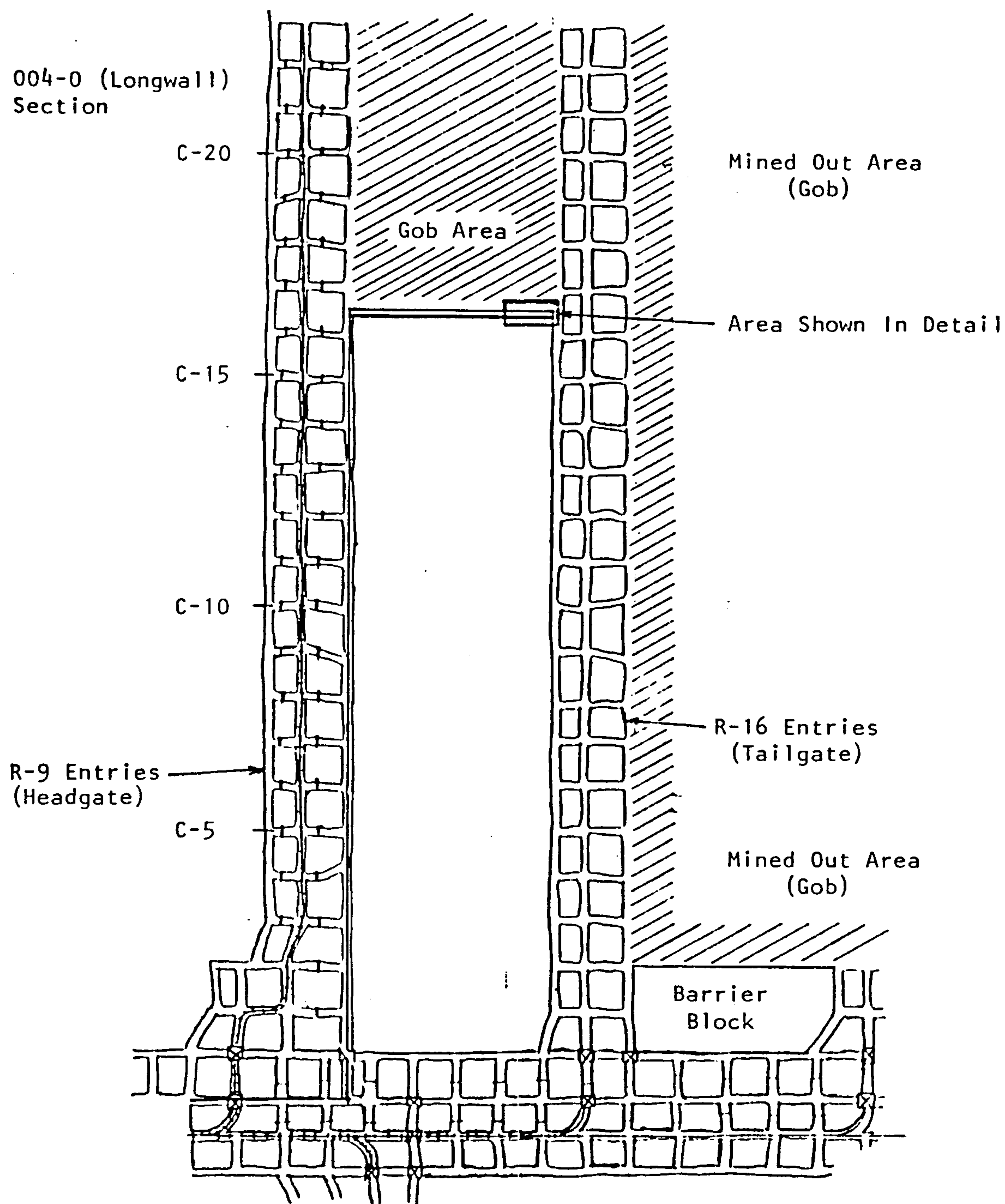
## Section E—Abstract

A coal outburst occurred at 4:15 a.m., Monday, May 8, 1989, on the 004-0 (Longwall) Section. The longwall shearer was making the cut-out with the shearer approximately 24 feet from the tailgate entry, when the outburst occurred. One (1) person, Johnny Thompson, head-gate side shearer operator, received injuries from the outburst. The injured was checked for injuries by Robert Knoll, Propman and transported to the surface via diesel mantrip. The injured was then taken to the Harlan Appalachian Regional Hospital and then transported via helicopter to the Holsten Valley Community Hospital, Kingsport, Tennessee.

## Section F—Mine Organization

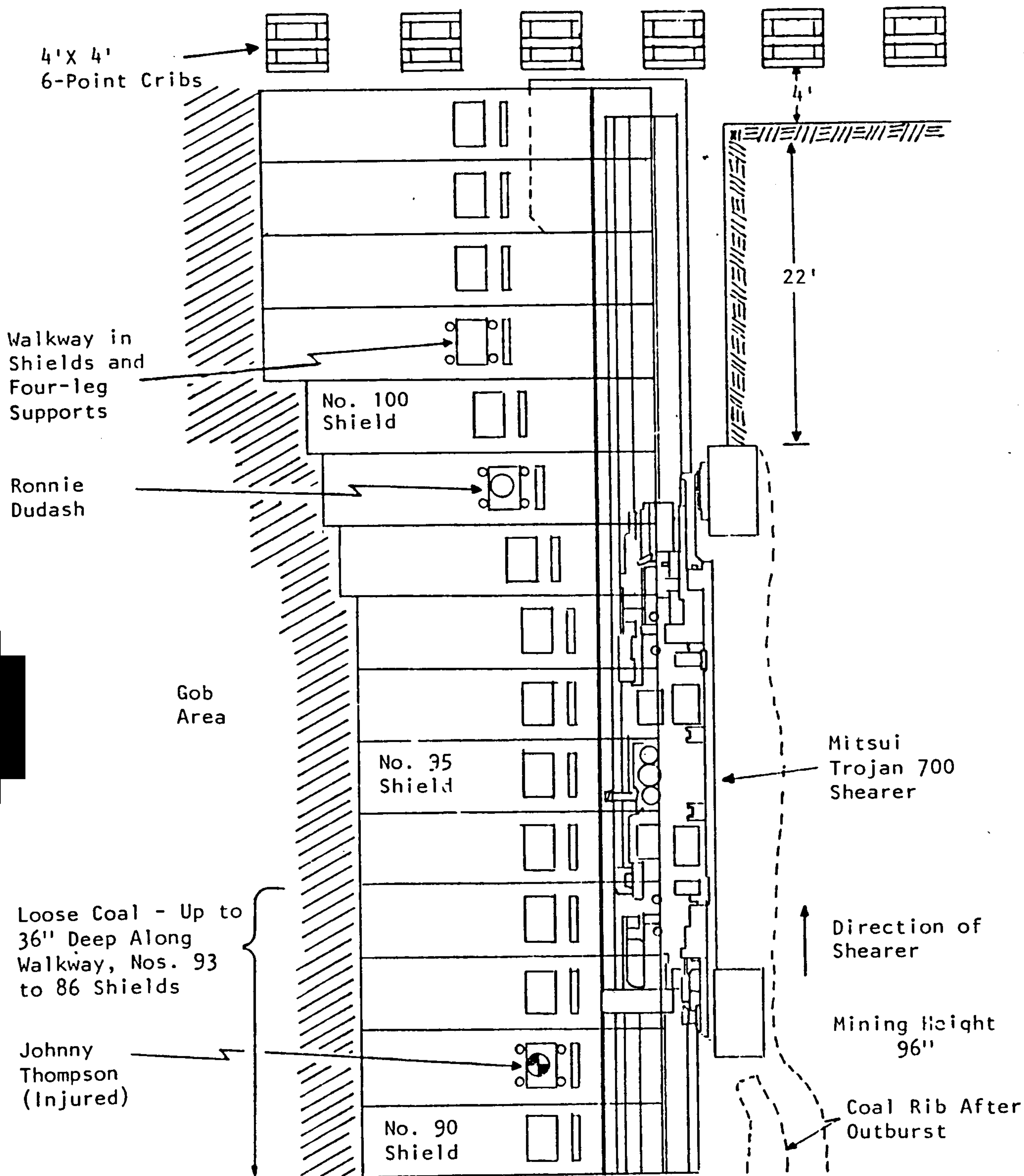
Company officials:	Name	Address
19. President:	Tom J. Sawarynski	P.O. Box 787, Lynch, KY 40855
20. Superintendent:	Danny L. Stickel	P.O. Box 787, Lynch, KY 40855
21. Safety Director:	Kenneth R. McCoy	P.O. Box 787, Lynch, KY 40855
22. Principle officer—H&S:	Danny L. Stickel	P.O. Box 787, Lynch, KY 40855
23. Labor Organization:	UMWA; District 19; Local 7425	P.O. Box B, Cumberland, KY 40823
24. Chairman—H&S Committee:	Robert Clay	101 Huff Ave., Cumberland, KY 40823

004-0 (Longwall)  
Section



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MAY 8, 1989

Scale: 1" = 400'



Sketch Number 2

NONFATAL COAL OUTBURST ACCIDENT  
 NO. 37 MINE (I.D. NO. 15-04670)  
 ARCH OF KENTUCKY, INC.  
 CUMBERLAND, HARLAN COUNTY, KENTUCKY  
 MAY 8, 1989

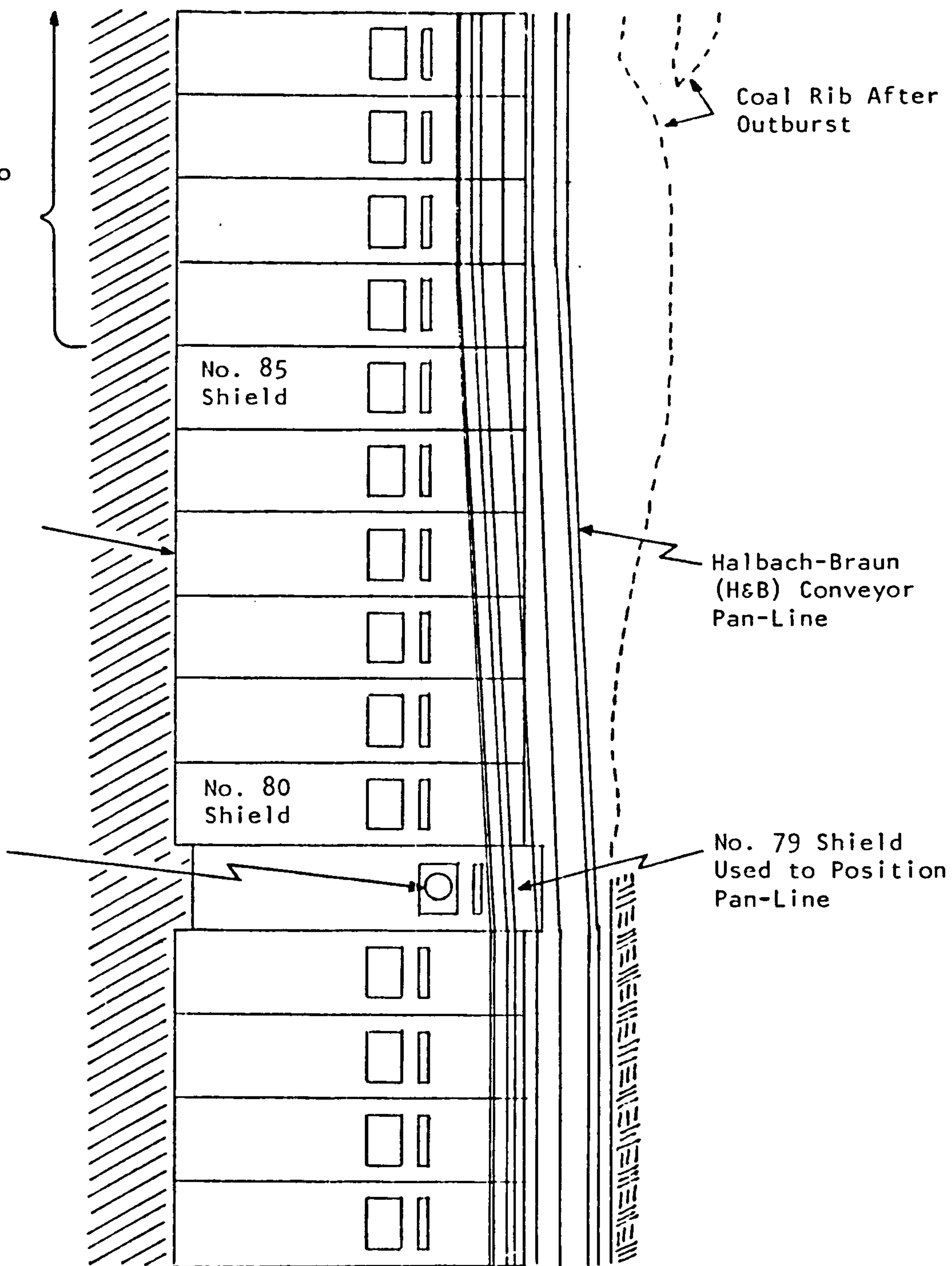
Scale: 1" = 10'



Loose Coal - Up to  
36" Deep Along  
Walkway, Nos. 86  
to 93 Shields

Westfalia Shields

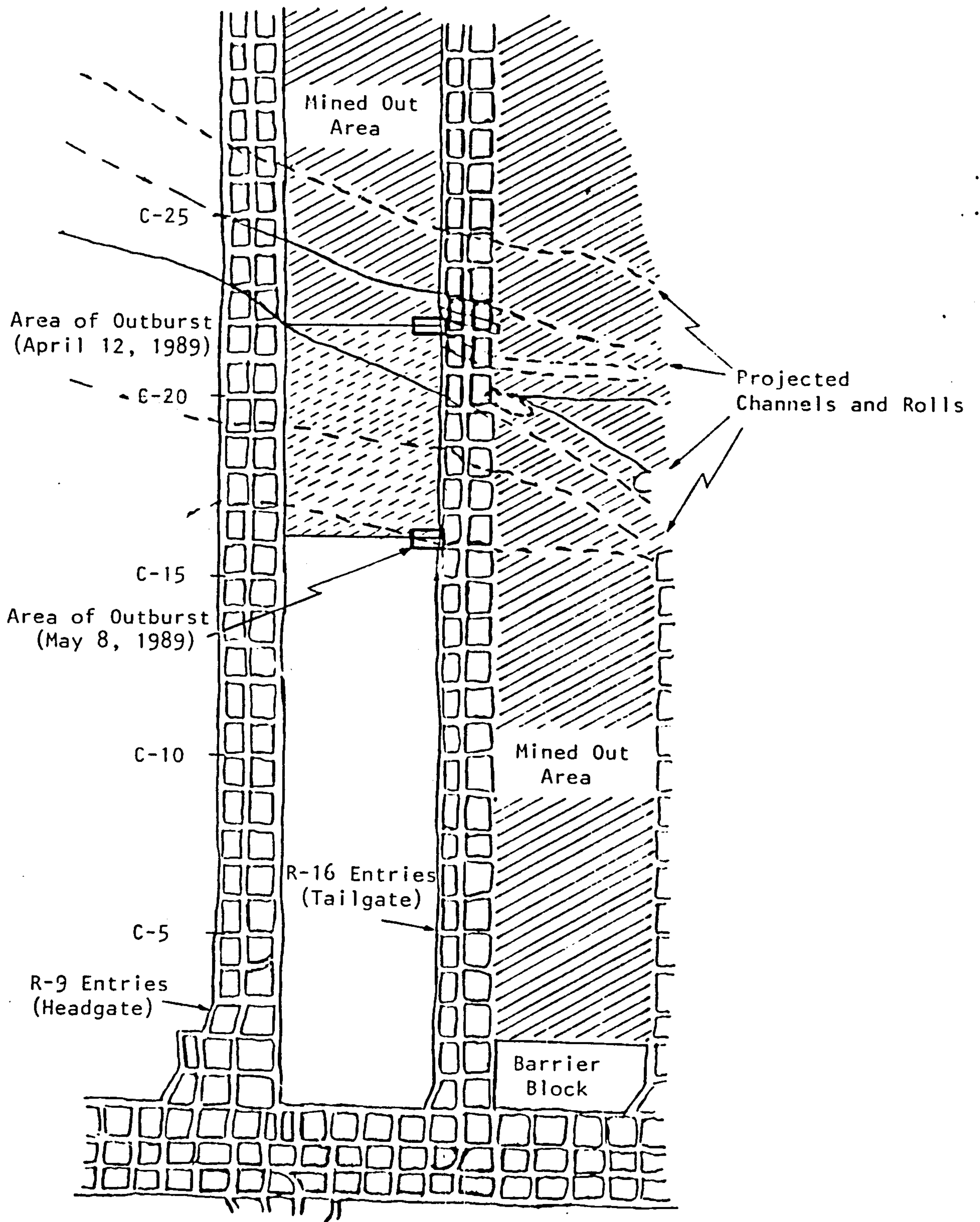
Robert Knoll



Sketch Number 3

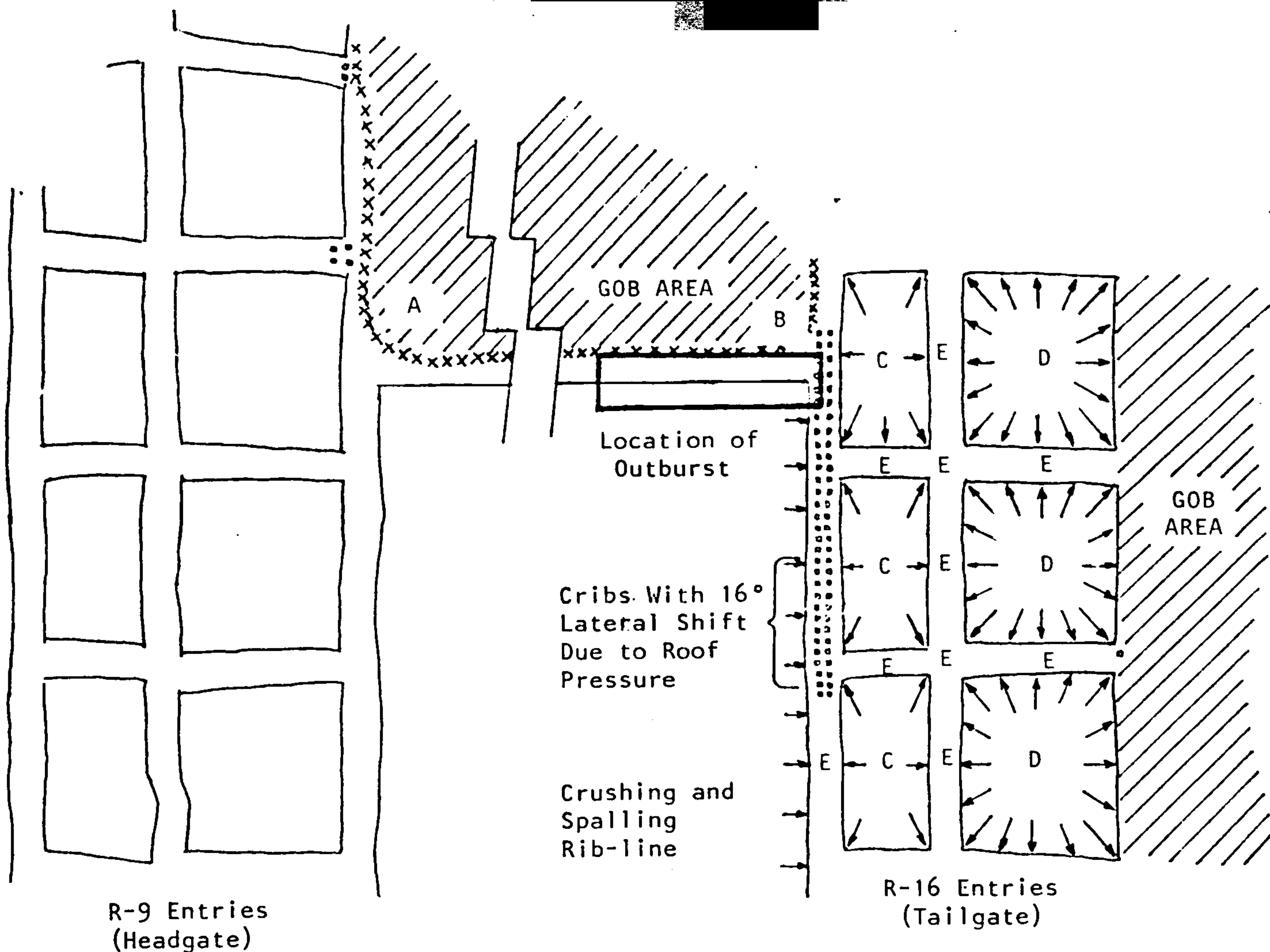
NONFATAL COAL OUTBURST ACCIDENT  
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ARCH OF KENTUCKY, INC.  
CUMBERLAND, HARLAN COUNTY, KENTUCKY  
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Scale: 1" = 10'



Sketch Number 4  
 NONFATAL COAL OUTBURST ACCIDENT  
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 CUMBERLAND, HARLAN COUNTY, KENTUCKY  
 MAY 8, 1989

Scale: 1" = 500'



#### Legend

- oo - 4'x 4' 6- Point Wooden  
Cribs
- A - Caved to approximately 14'
- B - Caved to approximately 12'
- C - Partially crushed pillars
- D - Completely crushed pillars
- E - Floor broken and heaved

Sketch Number 5

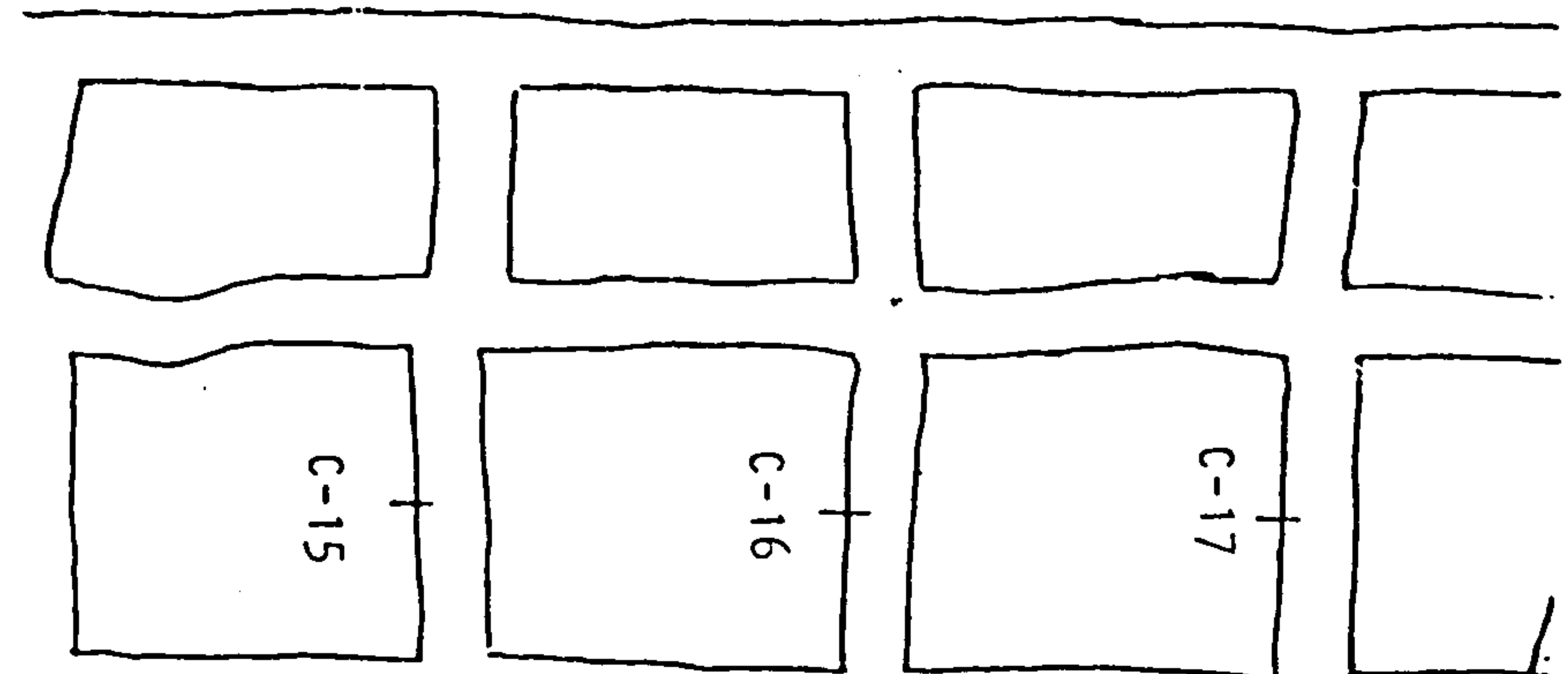
NONFATAL COAL OUTBURST ACCIDENT  
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Not To Scale

Not To Scale



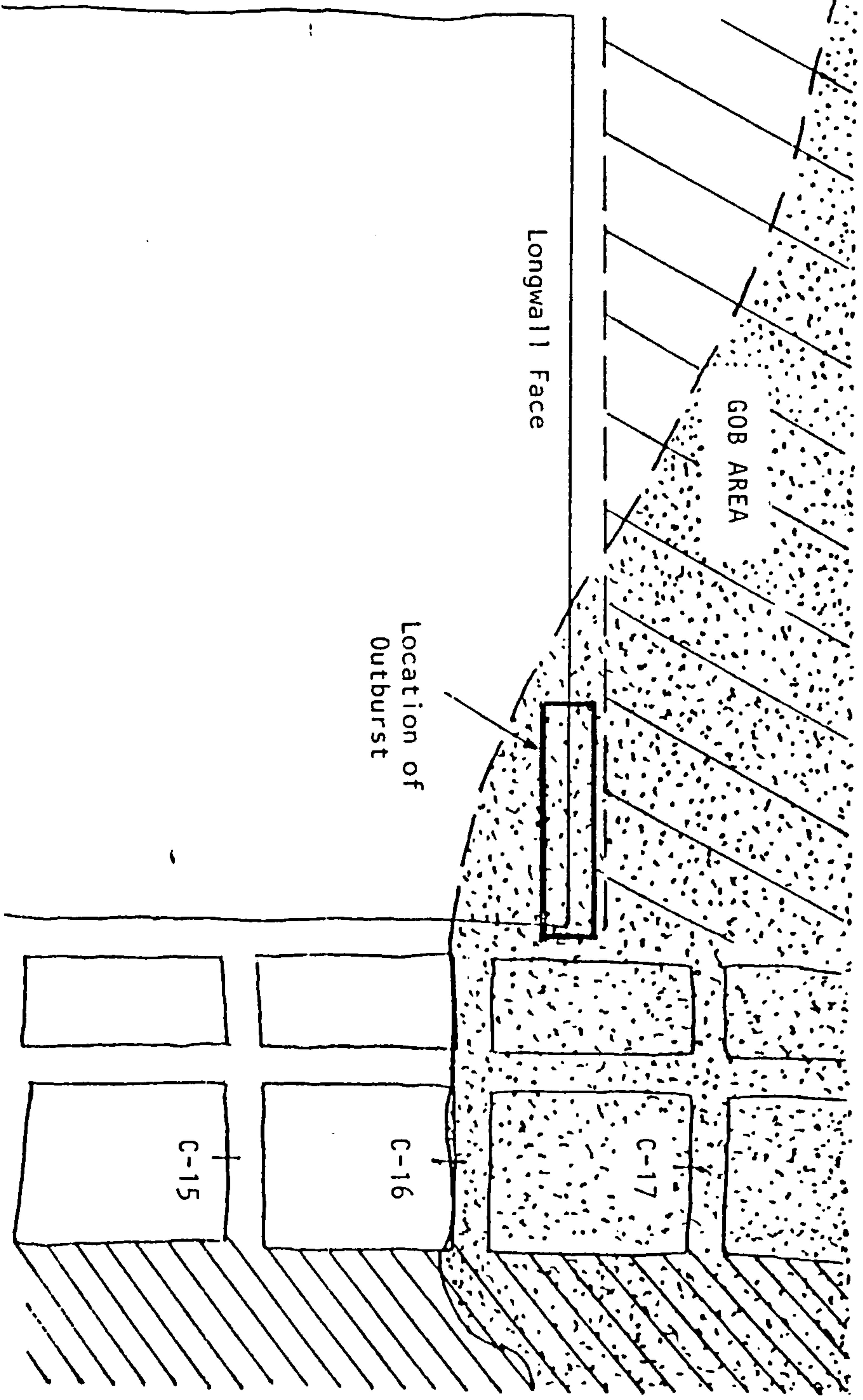
R-9 Entries  
(Headgate)



Longwall Face

GOB AREA

Location of  
Outburst





R-16 Entries  
(Tailgate)

Sketch Number 6

NONFATAL COAL OUTBURST ACCIDENT  
NO. 37 MINE (I.D. NO. 15-04670)  
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CUMBERLAND, HARLAN COUNTY, KENTUCKY  
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Legend

-  — Projected Roll
-  — Mined Out Area (R-16 to R-22)

Scale: 1" = 100'

